# Interchangeable Biosimilars and Insulin Spend: A Retrospective Analysis of Commercial Plans

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## Background

- Biologics are complex drug products derived from natural sources and produced using biotechnology or other cutting-edge methods. These agents account for a large portion of prescription drug spending in the United States, and there is an increasing need for strategies to manage their costs.[1,2]
- The first interchangeable biosimilar came to market in 2021, introducing the ability to substitute a biologic product with a biosimilar without prescriber intervention. This interchangeable biosimilar, Semglee® (insulin glargine-yfgn), is interchangeable with the reference product Lantus® (insulin glargine); both medications are long-acting insulin products.[3]
- Interchangeable biosimilars, which are approved on the basis of having no clinically meaningful difference to the reference product, have been touted as a major cost containment opportunity. However, there is currently limited evidence showing the impact of these products on prescription spending.[4,5]
- The cost of insulin in the United States roughly tripled between 2002 and 2013; these increases in price have generally outpaced other prescription drugs.[6] These price increases, and the growing population of diabetic patients in the United States, creates greater need for more affordable insulin to improve accessibility and affordability.

## Objective

To determine the effect of preferred coverage of an interchangeable biosimilar product, branded and unbranded insulin glargine-yfgn, on the total cost and net total cost of long-acting insulin for commercial plans.

## Methods

- A retrospective analysis was conducted, comparing claims data for members of four commercial prescription plans.
- Claims data for the pre-intervention period of July 1, 2021 to December 31, 2021 was compared to the post-intervention period of January 1, 2022 to June 30, 2022 (Figure 1).
  - The intervention included a formulary change to prefer coverage of interchangeable biosimilar insulin glargine-yfgn. During the pre-intervention period, the preferred product was the reference product, insulin glargine.
    - Three of the plans preferred both the branded and unbranded version of insulin glargine-yfgn and one plan preferred only the unbranded version of the interchangeable biosimilar product.
  - A letter was sent to in-network pharmacies prior to the formulary change, which included information on the preferred products on formulary and information regarding pharmacy-level substitution of interchangeable biosimilars.
- Members were included in the retrospective analysis if they had at least one paid claim for insulin glargine in the pre-intervention period and a paid claim for any formulary long-acting insulin in the post-intervention period.
  - Prescription claim information was utilized to compare the total cost and net total cost associated with long-acting insulin claims over the study period for the included member population.
  - Other formulary long-acting insulins included Levemir® (insulin detemir), Tresiba® (insulin degludec), and Toujeo® (insulin glargine U300).

**Figure 1. Project timeline**



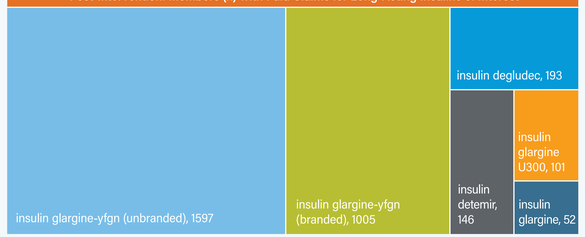

## Results

**Table 1: Baseline member demographics**

| Baseline Member Demographics (n=3899) | |
|---|---|
| Mean Age, Years (SD) | 51.5 (15.5) |
| Female, n (%) | 1536 (39.4%) |
| Male, n (%) | 2363 (60.6%) |
| Plan A, n | 842 |
| Plan B, n | 181 |
| Plan C, n | 1602 |
| Plan D, n | 1274 |

**Figure 2. Post-intervention, long-acting insulin utilization**

Post-Intervention: Members (n) with Paid Claims for Long-Acting Insulins of Interest




In the pre-intervention period, there were 3,899 members with paid claims for insulin glargine in the study population; post-intervention, there were 2,849 members with 3,094 unique paid claims for the long-acting insulins of interest within the study population. After the formulary change, 84.10% of long-acting insulin claims were for the interchangeable biosimilar insulin-glargine-yfgn, 1.68% remained with insulin glargine, and the remaining 14.22% of claims were for other long-acting insulin products.

**Figure 3. Members lost to follow-up in the post-intervention period**

Lost to Follow-Up
Breakdown of 1,050 Members with No Long-Acting Insulin Claims in Post-Intervention Period

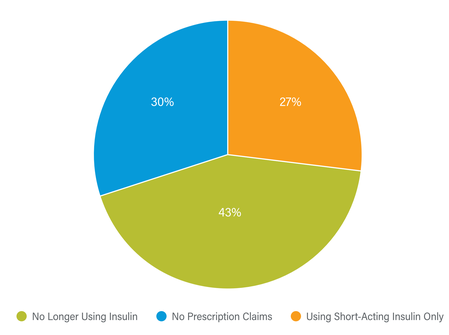
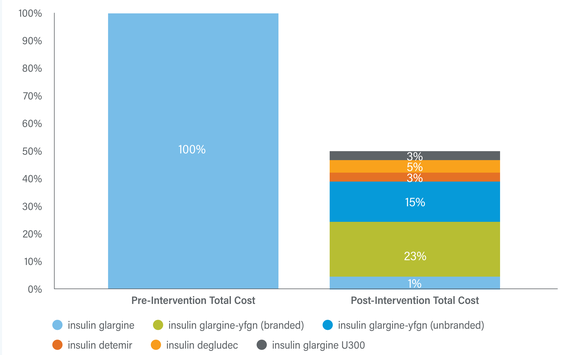



**Figure 4. Total cost**

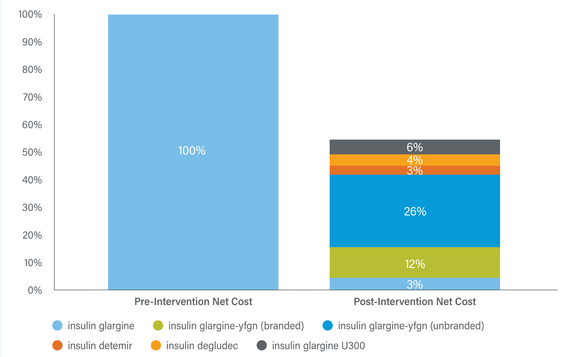
Total Cost of Prescription Claims for Long-Acting Insulin




Mean decrease in total cost across the four commercial plans was 28-54% (p<0.001).

**Figure 5. Net cost**

Net Cost of Prescription Claims for Long-Acting Insulin




Mean decrease in net cost across the four commercial plans was 28-48% overall (p<0.001).

**Table 2: Mean percentage change in cost per member**

| | Total Cost | Net Cost |
|---|---|---|
| Plan A | -28% | -28% |
| Plan B | -40% | -48% |
| Plan C | -54% | -37% |
| Plan D | -29% | -35% |

## Conclusions

- The retrospective analysis determined that the formulary change to prefer interchangeable biosimilar insulin glargine-yfgn was associated with a statistically significant decrease in spending on long-acting insulin for four commercial clients.
- After a formulary change to prefer an interchangeable biosimilar product, over 80% of claims for long-acting insulin in the study population were successfully converted to the interchangeable biosimilar product, insulin glargine-yfgn.
- Encouraging utilization of interchangeable biosimilars through formulary management may be an effective strategy to manage prescription medication spending on biologic agents such as insulin.
- Pharmacists are well positioned to help navigate the financial, clinical, and operational considerations necessary for managing the increasing number of biosimilar products on the market and the transition of members to these biosimilars.

## Future Directions

- Continuous evaluation of cost effectiveness of interchangeable biosimilar insulin in comparison with branded insulin and authorized generic products is needed to ensure the lowest net cost while continuing to meet the needs of members through available formulary medications.
- Further studies are needed to determine the impact that interchangeable biosimilars in other drug classes may have on prescription drug spending, as well as to investigate patient uptake, adherence, and persistence of use of interchangeable biosimilar medications.
- Increased pharmacist support and resources are needed to educate prescribers and members to improve confidence in prescribing and transitioning to biosimilars.

## Disclosures

This research was conducted by Navitus Health Solutions, based in Madison, WI, without external funding.

## References

1. U.S. Food and Drug Administration. What are "biologics" questions and answers. Centers for Biologics Evaluation and Research. February 6, 2018. Accessed August 26, 2022. https://www.fda.gov/about-fda/center-biologics-evaluation-and-research-cber/what-are-biologics-questions-and-answers
2. U.S. Food and Drug Administration. Health Care Provider Materials. Centers for Biologics Evaluation and Research. July 28, 2021. Accessed August 26, 2022. https://www.fda.gov/drugs/biosimilars/health-care-provider-materials#fact
3. Matli MC, Wilson AB, Rappsilber LM, Sheffield FP, Farlow ML, Johnson JL. The First Interchangeable Biosimilar Insulin: Insulin Glargine-yfgn [published online ahead of print, 2021 Dec 31]. *J Diabetes Sci Technol.* 2021;1932296821067511. doi:10.1177/19322968211067511
4. Singh SC, Bagnato KM. The Economic Implications of Biosimilars. *Am J Manag Care.* 2015;21(16 Suppl):s331-s340. *Pharmacoecon Outcomes Res.* 2018;18(4):447-454. doi:10.1080/14737167.2018.1476142
5. Grewal S, Ramsey S, Balu S, Carlson JJ. Cost-Savings for Biosimilars in the United States: a Theoretical Framework and Budget Impact Case Study Application Using Filgrastim. *Expert Rev Pharmacoecon Outcomes Res.* 2018;18(4):447-454. doi:10.1080/14737167.2018.1476142
6. Tichy EM, Hoffman JM, Suda KJ, et al. National trends in prescription drug expenditures and projections for 2021. *Am J Health Syst Pharm.* 2021;78(14):1294-1308. doi:10.1093/ajhp/zxab160

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